REMARKS/ARGUMENTS

The Applicants have carefully considered this Application in connection with the Examiner's Action and respectfully request reconsideration of this Application in view of the foregoing amendment and the following remarks.

The Applicants originally submitted Claims 1-19 in the present Application. The Applicants have amended Claims 1, 6-8 and 13-14. Accordingly, Claims 1-19 are currently pending in the Application.

Support for the amendments to independent Claim 1 and Claim 8 may be found, among other places, on page 16, paragraph 55, and on paragraph 62, pages 17-18, of the present Application.

Page 16, paragraph 55 states:

> Once a set S of monitoring stations has been selected, a probe message assignment $\mathcal{A}$ for measuring the latency of network links should be computed. As stated above, a "feasible probe message assignment" is a set of probe messages $\{m(s,u) \mid s \in S, u \in V\}$, where each $m(s,u)$ represents a probe message that is sent from station s to node u. Further, for every edge $e = (u,v) \in E$, a station $s \in S$ exists such that $e \in T_s$ and $\mathcal{A}$ contains the probe messages $m(s,u)$ and $m(s,v)$. (If s is one of the edge endpoints, say node v, then the probe message $m(s,v)$ is omitted from $\mathcal{A}$.)

Paragraph 62 of pages 17 – 18 states:

> Let $S = \{s_1,s_2\}$ be the set of selected monitoring stations. The RTs T_{s1} and T_{s2} are the shortest path trees rooted at nodes s_1 and s_2 as illustrated in FIGUREs 4B and 4C, respectively. The simple probe message assignment algorithm assigns all graph links to be monitored by s_1 except the links (s_2,a) and (c,d) which are monitored by s_2. Note that s_2 transmits two probe messages $m(s_2,c)$ and $m(s_2,d)$ that traverse nodes a, b and c *to measure the latency of link (c,d).* Now, consider the failure of link (a,b) that causes the RTs of s_1 and s_2 to be modified as shown in

> FIGURE 4D. (RTs typically adapt to failures in a few seconds or a few tens of seconds, depending on IP routing protocol parameter settings.) Specifically, the new RT for s_1 contains the link (s_2,a) instead of (a,b), while the tree for s_2 contains the links (s_1,b) and (y,d) instead of (a,b) and (c,d). Clearly, neither s_1 nor s_2 detects the failure of link (a,b), and further since the probe messages $m(s_2,c)$ and $m(s_2,d)$ traverse a diverse set of nodes ($\{s_1,b\}$ and $\{s_1,x,y\}$, respectively), they are no longer measure the latency of link (c,d). (Emphasis added).

The Examiner has indicated that Claims 15-19 are allowed. The Applicants thank the Examiner.

The Examiner has also indicated that Claims 6-7 and 13-14 are objected to, but contain allowable subject matter. In response, the Applicants have amended Claims 6 and 13 to place them in independent form, including all of the recitations of the original independent Claims 1 and 8, respectively. The Applicants have also amended dependent Claims 7 and 14 to depend from now-independent Claims 6 and 13. The Applicants respectfully request that the objections to Claims 6-7 and 13-14 be withdrawn.

I. Rejection of Claims 1-5 and 8-12 under 35 U.S.C. §103

The Examiner has rejected Claims 1-4 and 8-11 under 35 U.S.C. §103(a) as being unpatentable over United States Patent Application Publication 2002/0143914 A1 to Cihula ("Cihula") in view of *Essential SNMP, First Edition*, by Mauro *et al.* ("Mauro"). The Examiner has rejected Claims 5 and 12 under 35 U.S.C. §103(a) as being unpatentable over Cihula in view of Mauro and in further view of *Interconnections: Bridges, Routers, Switches and Internetworking Protocols, Second Edition* by Perlman ("Perlman").

Claim 1 is directed to a system for monitoring link delays and faults in an IP network. The invention of Claim 1 includes a probe message identifier, coupled to a monitoring station identifier that computes a set of probe messages to be transmitted by at least ones of a set of monitoring stations such that delays and faults *in specific links spanning the set of monitoring stations* can be determined. (Emphasis added).

Cihula is directed to a network-aware policy deployment that uses dynamic information, such as topology, congestion, link bandwidth, error rates, and the like, to purportedly intelligently deploy a policy. Because software of Cihula determines how to deploy a policy, this software is purportedly able to map a single user-created policy onto several devices that might have otherwise required the user to create and maintain multiple policies. (Abstract).

In Cihula:

> ...[T]hepolicy management tool 150 uses the dynamic network information 153 to maintain the relationships between traffic classification and priority markers for both the network 102 devices and the network 104 devices. The policy management tool 150 generates a policy to tag certain traffic going to a set of edge devices in the network 102 with translation markers. .... The policy automatically selects the prioritization mechanism based on the protocol and/or media the traffic traverses. The policy management tool 150 maps the policy to the set of edge devices to prioritize the traffic through the devices such that the relationships between traffic classification and priority markers for both the network 102 devices and the network 104 devices is maintained. (Paragraph [0045]).

In other words, Cihula implements policy decisions on various network 102 devices as a function of traffic prioritization. However, as will be detailed below, Cihula is not directed to determining delays and faults *in specific links spanning a set of monitoring stations* by a set of probe messages, as is claimed in independent Claim 1 as amended.

Although in Cihula:

> The policy management tool 150 includes dynamic network information 153. In one embodiment, the dynamic network information 153 maintains information, such as topology, error rates, response times, and the like, for the router 108, the switch 106, the hub 110, the servers 132, and links between the devices.... (Paragraph [0032]),

The policy management tool 150 of Cihula does not concern itself with determining delays and faults of *specific* links between the devices when implementing its policy. Instead, the policy management tool 150 uses error rates of links between devices in a 'black box' approach to policy implementation of generalized links, not in determining the delays or faults of *specific* links. In other words, the policy management tool 150 is concerned with implementing total throughput/ quality control of data packets, not in identifying specific link errors and failure. Any determination of the error rate of links of Cihula are subsumed into an implementation of the priority policy, but the determination of delays and faults of *specific* links are not disclosed or suggested by Cihula.

For instance, in Cihula:

> The policy manager 156 deploys a priority policy, which assigns different priorities (prioritizes) to specific types (or classification) of traffic. When a network device encounters traffic (comprised of packets) that matches the policy's conditions, the device adds a priority tag to the packet, which is a logical grouping of information that includes a header containing control information. Packets, which are another logical grouping of information, tagged with a high priority are processed through devices' high priority queues and packets tagged with a low priority are processed through devices' low priority queues.

However, the policy manager 156 is not concerned with determining delays and faults *in specific links spanning a set of monitoring stations*. Instead, Cihula is concerned with tagging packets and placing them in high priority queues or low priority queues.

The Examiner has also stated that Cihula does not disclose "a probe message identifier, coupled to said station identifier, that computes a set of probe messages to be transmitted by at least ones of said set of monitoring stations such that said delays and fault can be determined." (Office Action, page 2). The Applicants agree with the Examiner.

However, the Examiner further states that Mauro contains means for polling remote devices and network connections for network problems and other issues and that "[t]his polling method will easily perform the required monitoring as specified by Cihula" and that "[t]her efore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate polling with SNMP into the monitoring agent system of Cihula, to monitor network traffic." (Office Action, page 3).

Mauro is generally directed to "polling devices regularly, collecting their management information" *vis-à-vis* Simple Network Management Protocol ("SNMP") (Mauro, page 1 of 3). Applicants respectfully state that the Examiner does not address the specific language of Claim 1 in the Office Action, even before the present amendment of independent Claim 1. Claim 1 recites in part "a probe message identifier, coupled to said monitoring station identifier, *that computes a set of probe messages* to be transmitted by at least ones of said set of monitoring stations such that said delays and faults in specific links spanning said set of monitoring stations can be determined." The Applicants are unable to find a disclosure within Mauro of *computing a set of probe*

messages. Nor has the Examiner pointed to language within Maura that discloses this feature of independent Claim 1.

The Applicants are further unable to find a disclosure within Mauro of computing a set of probe messages to be transmitted by at least ones of a set of monitoring stations such that delays and faults *in specific links spanning said set of monitoring stations* can be determined.

Furthermore, given the teachings of Cihula, one of ordinary skill in the art would not be motivated to combine Cihula and Mauro to arrive at the invention of amended independent Claim 1. As stated above, the policy manager 156 is not concerned with determining delays and faults *in specific links spanning a set of monitoring stations*. Instead, Cihula is concerned with dynamic system information to implement a policy. One of ordinary skill in the art would not be motivated to combine a system that implements an overall policy with a generalized teaching of "polling [your] devices regularly, collecting their management information to arrive at the presently claimed invention. Assuming for the sake of argument that Cihula did use SNMP, it would not use SNMP so that a set of probe messages to be transmitted by at least ones of a set of monitoring stations can be computed such that delays and faults *in specific links spanning said set of monitoring stations* can be determined, as is claimed in independent Claim 1 as amended, as Cihula is directed towards a generalized policy implementation system.

Regarding independent amended Claim 8, which contains language analogous to the language of Claim 1, the Examiner asserts that Cihula discloses "computing a set of probe messages to be transmitted by at least ones of said set of monitoring stations such that said delays and faults can be determined." The Examiner has not cited to a passage with Cihula to support

this assertion. Cihula does not explicitly disclose or suggest this feature for at least some the reasons discussed above concerning independent Claim 1.

Cihula, individually or in combination with Mauro and Perlman, fails to teach or suggest the invention recited in independent Claims 1 and 8 and their dependent claims, when considered as a whole. Claims 1-5 and 8-12 are therefore not obvious in view of Cihula, Mauro and Perlman.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 1-5 and 8-12 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

II. Conclusion

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-19.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application. The Commissioner is hereby authorized to charge any fees, credits or overpayments to Deposit Account 08-2395

Respectfully submitted,

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